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Community Acceptance: An Evaluation of Onshore Wind Energy Development in Ireland

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Summary. Most of Ireland's current renewable energy installed capacity is in the form of onshore wind energy, and it is accepted that it will continue to play a fundamental role. The Republic of Ireland has a renewable-energy target for electricity generation of 40% by 2020. This reflects EU and international obligations to reduce greenhouse gas emissions to mitigate climate change. Ireland is particularly suited to generating electricity from onshore wind given its advantageous geographical location. Despite this, the country faces major challenges connecting wind farms to the national electricity grid, and is unlikely to meet its 2020 targets. This research conducted an evaluation of onshore wind-energy development in Ireland. It engaged with many literatures, particularly the social science literature on onshore wind energy, the literature on Irish national wind-energy policy, and socio-technical transitions work in relation to energy transitions. The study also combined the analysis of semi-structured interviews. The findings indicated that policy incoherence in the Irish state's onshore wind-energy policy and poor community acceptance of local wind-energy projects are key factors inhibiting the development of onshore wind energy in Ireland. It was concluded that national government need to demonstrate greater leadership in developing coherent public policies that support local communities to become active stakeholders. An important contribution was the identification of a series of policy recommendations to improve coherence and community acceptance. This study also made an original contribution to a very small and recent body of knowledge using the socio-technical transitions approach to research the Irish low-carbon energy transition.

1. Introduction

The technology of interest in this research study was onshore wind energy. If it is to continue its contribution to transforming Europe's energy system, a significant increase in installed capacity is required. This entails interaction between a wide range of actors, processes and institutions at multiple levels and timescales, thus constituting a considerable challenge and opportunity for policy makers, wind-energy developers and wider society. This study examined whether policy incoherence and poor community acceptance are inhibiting the development of onshore wind energy in Ireland, since the extant literature suggested that a key challenge for a successful low-carbon transition is the implementation of coherent and supportive policy [1, 2, 3, 4, 5] and achieving community acceptance [6, 7, 8, 9].

Most of Ireland's new renewable energy capacity is in the form of onshore wind energy [10:7]. Other technologies are being developed as part of a renewable energy portfolio, including hydro, tidal, wave, solar photovoltaic, landfill gas, biomass, biogas and offshore wind [11]. However, onshore wind is the most established and mature [11:59], and the most competitive when compared to electricity from fossil fuels [12:55]. Ireland has made considerable progress in the growth of wind energy for electricity production [10:7] and enjoys one of the best wind resources in Europe [11:53, 13:1978, 14:5].

Furthermore, Ireland has a legally binding greenhouse gas reduction target of 20% under its contribution to the European Union climate and energy package for 2020. This can only be achieved through the expansion of renewable energy generation [15:181] and is supported by Irish energy and sustainable development policies [16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26]. Wind energy is the technology of choice in Ireland [23] which necessitates an increase in its deployment over the next 4 years to meet European Union 2020 targets [27, 28]. There is considerable uncertainty over how, or whether, these short-term targets will be met [29] which raises questions regarding the governance of onshore wind-energy policy, and was examined in this study.

2. Method

This study engaged with and is located within variety of literatures, particularly the social science literature on onshore wind energy, the literature on Irish national wind-energy policy, and the socio-technical transitions work in relation to energy transitions. It also combined the thematic analysis of Irish national onshore wind-energy policy documents and semi-structured interviews with sixteen key stakeholders, such as policy-makers, politicians and energy experts. The policy documents chosen collectively formed the backbone of Irish renewable-energy policy and its downstream implementation. Additionally, all interviewees were key influencers of onshore wind-energy development at a local level in Ireland. The study also examined other jurisdictions in Europe, considered to be leaders in wind-energy diffusion (such as Germany), and reflected on the policies that have led to their success.

Since the processes involved in onshore wind-energy development are partly non-technological (*i.e.* social, political, and cultural), the study required an understanding of how the implementation of onshore wind-energy technology is part of an interlinked *socio-technical system* that interacts with the local community, key stakeholders, and the local environment [2, 3, 10, 30, 31, 32, 33, 34, 35, 36, 37, 38]. A socio-technical systems approach was thus adopted as the theoretical framework to guide the selection, analysis and interpretation of the data. This approach helped provide qualitative evidence for the challenges associated with onshore wind-energy development. It also enabled findings, recommendations, and conclusions to be drawn regarding the factors that influence onshore wind-energy development at a local level, in both Ireland and throughout Europe.

The policy analysis identified seven themes that influence the development and implementation of onshore wind-energy projects, and have implications for the onshore wind energy industry. These themes are:

- Achieving 2020 renewable energy targets but failing to be more ambitious;
- Streamlining the planning process;
- Modernisation and expansion of the national electricity grid;
- Job creation;
- Renewable Energy Feed-in Tariff;
- Community acceptance;
- Electricity storage.

The analysis of semi-structured interviews identified a further nine themes which were synthesised, categorised, and discussed in relation to the literature reviewed and the results from the policy analysis:

- Community acceptance;
- Community benefit;
- Community engagement;
- Public information, awareness raising and education;
- Communicating the benefits of onshore wind-energy commercial rates;
- National wind energy strategy;

- National incentives and policy support for community projects;
- Grid infrastructure challenges;
- Crossborder policy alignment between the Republican and Northern Ireland.

The interview data analysis identified two areas where more academic research is required: communicating the benefits of onshore wind-energy commercial rates in terms of local government services and activities, and cross-border policy alignment between Northern Ireland and the Republic of Ireland. This study thus uncovered new areas that merit further academic and industry research. It also drew attention to key issues that can function as drivers or barriers to development, including wind-generation potential, the planning of electricity infrastructure regimes, market-support mechanisms, community benefit and ownership models, and their impact on local acceptance.

3. Results

The results of this study confirm previous research that community acceptance [7, 39, 40, 41, 42, 43, 44, 75] and a coherent national policy framework [45, 46, 47, 48] are key factors in the continued deployment of onshore wind-energy projects. Considerable incoherence was found in Irish national policy which is inhibiting further onshore wind-energy development. This is in part linked to the lack of more demanding longer-term renewable-energy targets and an associated comprehensive national wind-energy strategy, vital elements of a shared future energy vision amongst all stakeholders which is considered a vital issue by socio-technical transitions researchers [37, 49, 50, 51]. This study also found the Irish government to be under-ambitious regarding renewable-energy development, and lacking in political leadership and policy commitment, as suggested by previous research [52, 53, 54, 55].

Evidence indicates that the national electricity grid is a significant technical and governance impediment to onshore wind-energy deployment in Ireland, a finding consistent with previous research [56, 57, 58, 59, 60]. The study also identified considerable delays in wind-energy facilities being connected to the national electricity grid, in comparison with other jurisdictions such as Scotland. This is a major reason why Denmark and Germany, for example, have more installed capacity than Ireland, despite Ireland having the greater onshore wind resource. This is due to political commitment/policy leadership and ambitious renewable energy targets [8, 48, 61, 62] and the facilitation of community participation and local ownership niches [47, 63, 64, 65, 66, 67]. In comparison, this study found Ireland's planning system for onshore wind energy to be: 1) incoherent, and 2) not supportive of community participation and ownership.

Eighty eight percent of interviewees in this study expressed general support for onshore wind-energy development, but indicated that local opposition was increasing, primarily due to: 1) the scale of wind farms; 2) the fact that they are mostly owned by large "external" companies; and 3) the minimal local benefits. This is consistent with previous research that reported broad public support for onshore wind energy, but increasing local opposition to specific proposals [7, 39, 68, 69, 70, 71, 72, 73, 74].

The results also suggested that those exposed to, and living near, existing wind farms are in favour of further development, as consistent with research such as [75] and [76]. The interview analysis did not find evidence of NIMBYism (Not in My back Yard), as suggested by other research [77, 78, 79, 80, 81, 82]. Instead, it suggested that increasing local opposition is due to a lack of tangible community benefit, and the failure of national policy to support local participation in wind energy siting decision-making, and addressing the 'social licence' for wind energy development.

The analysis suggested that tangible benefits including local job creation, financial reimbursement, community funds, community ownership and reduced electricity costs, could, *ceteris paribus*, increase community acceptance. It also indicated that local job creation could alleviate concerns that communities are being 'exploited' by outsiders [83, 84].

All research participants in this study want active community engagement, and ninety four percent reported that community/cooperative ownership of local wind-energy projects would be more acceptable to them than commercially owned renewable energy developments. This highlights the potential of nurturing specific technological niches, such as community energy projects, to further advance energy transitions [3, 4, 85]. It also confirms previous research that suggests community acceptance increases when local communities own, co-own, or have shares in local wind-energy projects, and feel they have actively engaged in helping shape planning and development outcomes [8, 65, 86, 87, 88, 89, 90, 91, 92, 93, 94].

The results of this study demonstrate that currently, Irish national wind-energy policy has failed, and is failing, local communities, in terms of providing policy support for their active inclusion in decision making on wind-energy siting, in currently not requiring wind developers to provide meaningful and tangible benefits to communities, and moving beyond passive forms of community consultation. Perhaps equally importantly, it has failed to provide the legal, financial and other support required for non-corporate/community/cooperatively owned and managed wind farms. An understanding of the role of local communities within the onshore wind-energy development process, especially in relation to ownership, is crucial. This highlights the need for industry and policy makers to incentivise community ownership models for wind energy.

4. Conclusions

This study offers an evaluation of onshore wind-energy development in Ireland, with an emphasis on social acceptance. It found that, as currently formulated, Irish national onshore wind-energy policy does not provide a consistent and integrated framework to effectively support onshore wind-energy development at a local level. This inhibits its potential for greater onshore wind-energy penetration. National policy also fails to adequately or explicitly support and encourage local community involvement in the development of onshore wind-energy projects, which creates the policy and political conditions that can lead to local wind opposition. In contrast, a socio-technical systems approach considers community acceptance, and the involvement of all stakeholders, as critical system functions for any successful energy transition.

The findings indicated that the coherence of Irish onshore wind-energy policy could be improved by setting more demanding and ambitious longer-term targets to 'force' greater coherence, through political demand for greater coordination. This would require a comprehensive and ambitious high-level national wind-energy strategy that sets out a long-term vision to shape and advance the energy transition, and mandates effective engagement with local communities.

The study also found that securing tangible benefits for local communities, and moving beyond passive consultation, would help to increase local acceptance and support for onshore wind energy. The study participants showed a clear preference for community/cooperative ownership of local wind-energy projects; a preference that is also found in the existing literature. The analysis also indicated that communities want other tangible benefits, in the form of local job creation, community funds and reduced electricity costs for those living near wind farms. The creation and strategic management of protected niches, such as community/cooperative owned projects, would increase the level and sustainability of local economic benefits.

In conclusion, this study provides evidence for the importance of specific factors associated with the successful development of onshore wind-energy projects. The analysis concludes that while progress would not have been made without private developer-led innovation, this model in its current form has come to an end. Communities are angry that the benefits are leaving their local areas, which creates local opposition. A new model is thus needed that focuses on, and engages, local communities. This requires policy makers and industry to demonstrate greater leadership in assisting local communities to become stakeholders in their own onshore wind-energy projects. What is therefore needed is a top-down support structure for a bottom-up movement.

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